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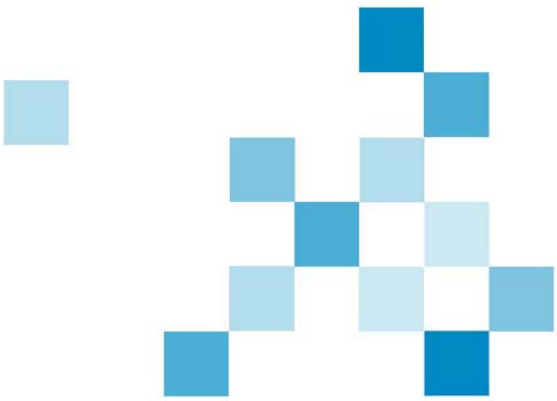

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Understanding Knowledge Sharing In Organizations: Further Questions Of Research Through A Social Cognitive Perspective

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Abstract

Enabling knowledge sharing among individuals in organizations is fundamental to innovation and organizational success. Nevertheless, despite receiving great attention among both academics and practitioners, knowledge sharing research is still searching for integrated framework. Recent literature reviews shows that most of the existing research has centered on a macro perspective, attaching less emphasis on the integration of the individual in the process. Being aware of this, an increasing group of scholars have proposed a multi-level integration of the individual and the organizational perspectives. This paper argues that this new approach that is grounded on sociology provides appropriate research questions, but might not be enough to successfully answer them, since is rooted in a sociological vision of the individual. Knowledge sharing literature might pay more attention to the reciprocal interaction of personal factors, individual behavior and organizational environment. A possible way to fill this gap can be by viewing the topic through the lens of the social cognitive theory. This theory permits a better integration of existing research of some psychosocial topics such as vicarious learning, self-efficacy, cognitive biases and schemas.

Keywords

Knowledge management, knowledge sharing, multilevel model, social cognitive theory.

1 Introduction

Knowledge sharing has been identified as a major focus area for knowledge management. The importance of this topic lays in the fact that it aims to link the individual level, where knowledge resides, and the organizational level, where knowledge is applied and attains value. This dichotomy between the individual and the organizational level causes that, in practice, the integration of individual knowledge into organizational knowledge encounters many barriers (Constant, Kiesler, & Sproull, 1994; Riege, 2005; Szulanski, 1996) rooted in both the individual and the organization.

Research about this issue has emerged from various epistemological approaches. Most of the existing researches about the topic -especially those that include quantitative research- have approached the problem by presenting correlations between macro constructs. This preponderance of macro analyses is likely to be caused by the difficulties of obtaining data on more than one level. As Foss, Husted, & Michailova (2010) stress, research of this nature may be useful for exploratory purposes, identifying correlations in need for micro-explanations. However, there is a need to sample at the level of the individual if a better understanding of the phenomenon is searched.

Being aware of the importance of the individual in the process, a wide number of authors have approached the analysis of knowledge sharing from a motivational perspective (Á. Cabrera, Collins, & Salgado, 2006; Constant et al., 1994; Cross & Cummings, 2004; Gee-Woo Bock, Zmud, Young-Gul Kim, & Jae-Nam Lee, 2005; Swift, Balkin, & Matusik, 2010). Most of these analyses try to explore the role of extrinsic and intrinsic motivation in shaping individual disposition to share, yielding inconclusive results.

A sociological perspective of the issue aims to offer a path to integrate the individual perspective in the analysis, holding that there may be a duality of interests between the individual and the organization (A. Cabrera & E. F. Cabrera, 2002). Therefore, the problem of how to foster individual sharing of knowledge in the organization can be presented as a public good dilemma. According to Kollock (1998) a public good is a resource from which all may benefit, regardless of whether they have helped provide the good. In this case, organizational knowledge can be seen as the public good. Considering that individual follow a rational behavior, there is temptation to enjoy the good without contributing to its creation or maintenance. Although it can be individually rational to free-ride, if all do so the public good is not provided and all are worse off. In order to provide a clear model for the analysis, an increasing group of researchers have recently pointed out the need of a multi-level perspective to connect both the individual and the organizational levels (Foss et al., 2010; Gee-Woo Bock et al., 2005; Quigley, Tesluk, Locke, & Bartol, 2007; S. Wang & Noe, 2010) to offer a more complete explanation of the knowledge sharing topic. This idea is rooted in social research, conceiving the organization as a social system where individuals are embedded.

Even though this perspective provides valuable insights, it can present some drawbacks derived from its sociological roots when considering the individual as the cornerstone of the analysis. In fact, it can be argued that the principal task of social sciences lies in the explanation of social phenomena, not behavior among individuals (Coleman, 1994). Therefore, this article aims to suggest an alternative framework of knowledge sharing analysis based on the social cognitive theory, which will allow a better integration of behavioral and individual concepts to further research about knowledge sharing. In doing so, the article is laid out as follow. The first part is devoted to analyze the

enormous importance that knowledge has for organizational performance, pointing out the significance of sharing knowledge in organizations. We review the most prominent views about the topic, emphasizing the increasing shift in research towards a more individual-based view. We then analyze the pros and cons of using a sociology-based multi-level framework for the analysis of knowledge sharing, and we propose that more emphasis in the cognitive approach might be useful in order to overcome the traditional assumptions in knowledge sharing analysis. We end by discussing future research directions and analyzing the implications of the research.

2 Increasing need for an individual-based perspective of knowledge sharing research

The importance of knowledge as a core resource for the development of competitive advantage has received enormous attention among both researchers and practitioners (Grant, 1996; Teece, 2007) especially in the last two decades. As a strategic resource, knowledge is classified as valuable, scarce, path dependent, causally ambiguous and hard to imitate and substitute for third parties (Wernerfelt, 1984). Many firms are depending increasingly on both the quality and quantity of knowledge that they are willing to create, develop and apply inside the organizational boundaries. This importance is even clearer for these organizations staffed by a high proportion of highly qualified staff who trade in knowledge itself (Blackler, 1995). Literature refers these companies with the term "knowledge-intensive firms" (Alvesson, 1995). Owing to this popularity; the development of knowledge management has emerged as a primary field of attention in management studies, trying to offer plausible explanations and guidelines towards the creation and development of knowledge in organizations.

Although the field of knowledge management comprises many aspects, the analysis of knowledge sharing has been recognized as a basic issue in this area. In this respect, the

importance of knowledge sharing for the organization has been put forward in several studies, which have positively related knowledge sharing to firm innovation capabilities, team performance, sales growth and other performance indicators (Damodaran & Olphert, 2000). These potential benefits for the organization have lead many researchers to invest great efforts in analyzing in which form the organizational environment should be managed to foster an effective sharing and use of knowledge. A social constructionist perspective was proposed by Ikujiro Nonaka & Konno (1998), introducing the concept of "ba" as a space for emerging relationships towards the creation of knowledge. In searching for an effective "ba", many organizations have invested time and money in the development of knowledge management initiatives, usually grounded on the development of information technology based tools such as "knowledge repositories" (Á. Cabrera et al., 2006). However, the mere existence of these KM initiatives does not guarantee that individuals will effectively involve in the process of sharing. The existence of information technology based tools can facilitate the disposition to share, but does not remove the requirement of a certain amount of individual disposition and effort for an effective sharing. Individuals often find barriers to engage in knowledge sharing initiatives, such as lack of time or lack of trust amongst employees (Widen-Wulff, 2004).

The ease or difficulty to share knowledge depends -among other factors- on the characteristics of knowledge itself, which has great influence over the way it is shared, stored and used. Based on these characteristics, some classifications of knowledge have been presented, such as the distinction between knowledge and information (Nonaka & Takeuchi, 1995). According to these authors, the difference between knowledge and information lays in the fact that the former is essentially related to human action, while the latter refers simply refers to a flow of messages, disregarding human intervention.

The distinction between the explicit and the tacit dimension of knowledge has received great attention in the management literature. Explicit knowledge is highly codified and is transmittable in formal, systematic language; while tacit knowledge is intuitive and inarticulated (Lam, 2000). Operational skills and know-how acquired through practical experience have a personal component that is difficult to communicate. Moreover, tacit knowledge is rooted on the context and the individuals involved. Literature conveys in the greater value of the tacit knowledge over explicit knowledge, although the transmission and adoption of explicit knowledge is usually easier (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004).

In the year 1995, Blackler (1995) already pointed out that in knowledge-based organizations, the most important mean of production -knowledge- is owned by the organization's employees. This transmission of ownership can be viewed, in some sense, as a change in the distribution of power, thus inducing a great challenge for organizations: how to successfully foster employees' creation and sharing of valuable knowledge. The importance of the individual is even greater in the transmission of tacit knowledge, and knowledge management initiatives usually fail in promoting an effective transmission of this type of knowledge. In this sense, some authors suggest that knowledge can be regarded as a cognitive phenomenon, thus embedded in individuals. Nonaka & Takeuchi (1995) were among the first authors that stressed the importance of the individual in the creation of knowledge. They recognized that knowledge creation should be viewed as a process whereby knowledge held by individuals is amplified and internalized as part of an organization's knowledge base, by means of sharing it. Nahapiet & Ghoshal (1998) also suggested that the gradual creation of new knowledge results from the combination and exchange of previously unconnected pieces of existing knowledge.

However, when recognizing that individual behavior has great importance in the creation and transference of organizational knowledge, and the fact that the ultimate decision to share tacit knowledge lies in the individual; an *agency problem* or a *public good dilemma* is presented (A. Cabrera & E. F. Cabrera, 2002), as mentioned in the introductory section.

The *agency problem* is closely related to the fact that the organization cannot determine the proportion of knowledge shared by an individual over the total potential knowledge that the individual could share among peers. The *public good dilemma* is more related to the *free-riding* problem that arises from the assumption that every individual will always behave in an individualistic manner, drived by selfish motives. Therefore, the public good dilemma approach set out some questions: are individuals always drived by self-interest when sharing knowledge among peers? From an individual standpoint, sharing knowledge is a rational or an irrational behavior? In our view, the individual should be the center of the analysis if the dilemma wants to be solved. Therefore, the assumptions made about individuals will determine the proposed solution.

3 Suggestion of a multi-level perspective

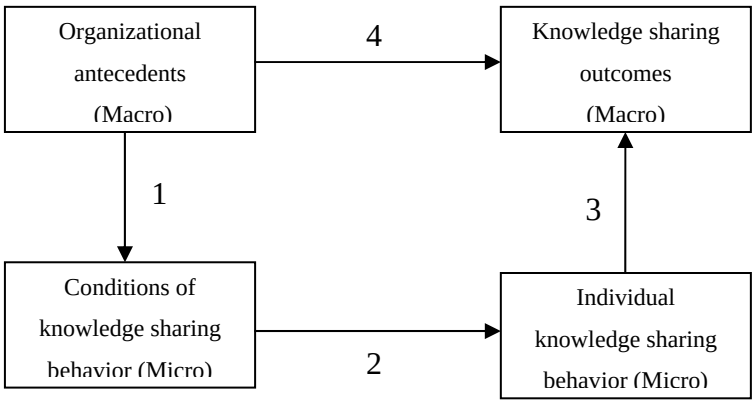
Knowledge governance literature has tried to offer solutions to the dilemma, usually based on the modification of some variables of the system with the aim to obtain the desired impact on a certain outcome. For instance, many researchers have published studies demonstrating the positive relationship between the payoff structure and the cooperation in the organization (Bartol & Srivastava, 2002; Wageman & Baker, 1997), but these studies have usually been focused on organizational variables rather than in the individual perspective. Usually, these solutions implicitly assume a simplistic model of individual behavior, based on self-interest and perfect rationality. The relationship between the individual and the environment is viewed in a one-sided deterministic way.

An increasing group of scholars (Foss et al., 2010; Foss, Lyles, & Volberda, 2009; Quigley et al., 2007; S. Wang & Noe, 2010) have recently point out the idea that most of the existing attempts to solve the dilemma are grounded on the analysis of macro-level variables. Foss (2010, 459) clearly express the inadequacy of this macro perspective by stating that "*explanations focused solely on macro variables and/or embedded in macro-micro links overlook the micro-level processes that mediate between macro variables and create observed correlation between those variables. Macro links are always mediated by micro links.*"

This group of researchers has realized that attempts to provide a successful solution should deeply analyze the interaction among both involved parts: the individual and the organization, and the proposed solution will vary depending on the assumptions made on the individuals involved. This stream of research proposes that a new approach towards knowledge sharing can be represented through the model developed by the sociologist Coleman (1994).

The application of the model for a better comprehension of the phenomenon has been reflected in some articles (Foss, 2007, 1996; Foss, Minbaeva, Pedersen, & Reinholt, 2009; Foss et al., 2010), and is presented in the figure 1:

Figure 1. Diagram of a multi-level perspective for knowledge sharing analysis



Source: Adapted from Foss (2010)

In his seminal work, Coleman (1994) argues that social sciences researchers can use two mechanisms for explaining human behavior. The fist one consists on the observation of the behavior of the system as a whole over a certain period of time, and then search for relationships between the system behavior and other variables of the social system that is under study. This mechanism is directly represented by the arrow 4 of the figure (macro-macro). This method of research, named "methodological collectivism" connects two macro variables but does not explain the underlying processes forming these two variables. As Foss points out, in the context of knowledge sharing analysis, "*what is obscured in this perspective is the issue of how knowledge that ultimately resides on the level of the individuals is somehow integrated through organizational means into organization-level capability, and how this integration results in knowledge being utilized in such a manner that competitive advantage becomes the result*." (Foss, 2007). As mentioned before, most of the existing research about knowledge sharing has used this approach. The second mode of explanation aims to examine those processes internal to the system, thus moving to a lower level than that of the system. Coleman labels this mode as the "internal analysis of system behavior", and argues that an

explanation based on this approach is likely to be more stable and general than an explanation which remains at the system level.

This new approach for the analysis of knowledge sharing proposed by Foss has certainly offered a new perspective of research, as demonstrated the publication of some articles offering the application of this view to the knowledge sharing analysis. In this attempt, one of the most interesting research papers was the one presented by Gee-Woo Bock et al., (2005). This study offers a theoretical framework integrating the influence of variables from both the individual (attitude towards knowledge sharing and subjective norm) and the organizational level (organizational climate), to explain the intention to share knowledge in the organization.

Quigley et al. (2007) also developed a theoretical model connecting two perspectives: the knowledge sender and the knowledge recipient. They proposed that the former is directly influenced by incentives and norms of shared knowledge, and the recipient is directed through its self-efficacy and the level of trust between both parties. Empirical results showed strong consistency for the theoretical model, but its main limitation lies in the fact that the empirical research was performed in a laboratory simulation. Additionally, they did not offer a measure of knowledge use from the recipient's part, therefore not linking the use of knowledge to increases in performance (arrow 3 – Figure 1).

In our opinion, these two studies have demonstrated that a new path for the analysis of knowledge sharing has strong potential to offer new interesting insights, especially for a better understanding of the complex interrelation between the individual and organizational variables. However, this new multi-level approach also shows some background assumptions that might be taken into consideration. The next section will be

devoted to the analysis of these assumptions and propose possible solutions for a more effective analysis of the knowledge sharing phenomenon.

4 Limitations of the Coleman's based framework

As outlined in the introductory section, one of the keys to obtain a better understanding of the knowledge sharing phenomenon is through the analysis of the interaction between intrinsic and extrinsic motivation. However, the Coleman's model might not be appropriated to approach this dichotomy between extrinsic motives and intrinsic motives. The model implicitly suggests a passive role of the individual, since it is conceived that she will react in a certain way to an external stimulus. If applying the Coleman's view to the analysis of motivation to share knowledge, the succession of events could be as follows: 1) the organization develops certain incentives for knowledge sharing through modifying organizational variables; 2) employees perceive the incentives offered by the organization and decide whether to share their knowledge or not; 3) the combination of each individual behavior create an organizational outcome, such as the creation of a certain competitive advantage such as an improvement of the organization's absorptive capacity, or the organizational learning capability, thus increasing its innovative capacity. However, given the great importance that intrinsic motivation has over individual behavior, it might be useful to question the order of these events. Could the individual be intrinsically motivated, behave in a certain way and modify the external environment? Evidently we do not aim to answer this question, rather to suggest that this perspective might provide interesting insights for a better understanding of the knowledge sharing phenomenon.

Assumption 1: The organization can only influence extrinsic motivation

As mentioned above, the Coleman's based model implicitly assumes a one-way correlation between environment and individual behavior. From a motivational perspective, it supposes that extrinsic motives will drive individual actors to action. However, this succession of events might not be clear when introducing the complex interrelation between intrinsic motivation, extrinsic motivation, environment and behavior. It is assumed that employees are extrinsically motivated if they are able to satisfy their need indirectly, especially through monetary compensation (Osterloh & Frey, 2000). Thus, in this case behavior is a means to an end and not involved in for its own sake (Cameron & Pierce, 1994). Conversely, intrinsic motivation considers that an activity is undertaken for one's immediate need satisfaction. Thus, it is self-sustained and the incentive could be the performed work itself.

According to these definitions, the organization has the possibility to modify extrinsic motivation, through incentives, social recognition, bonuses, etc. However, some authors have argued that intrinsic motivation usually leads to highly valued outcomes, since it is associated with creativity and even satisfaction of psychological needs (Deci & Ryan, 2000; Toubia, 2006). Some sociological theories such as the social facilitation paradigm suggests that external incentives enhance performance when in relies on making simple, routine, unchanging responses; but the role of incentives can be counterproductive in these situations that depend heavily on flexibility, conceptual and perceptual openness, or creativity. (Toubia, 2006; Deci & Ryan, 1985). Therefore, it seems reasonable to argue that external incentives will have a limited effect in the improvement of the disposition to share tacit knowledge. This effect constitutes an important problem for management, since there are difficulties in configuring a suitable incentive system. Moreover, the organization that decides to extrinsically motivate their employees

through extrinsic incentives may face a metering problem (Alchian & Demsetz, 1972) when trying to contingently reward their employees for their contribution to the organizational knowledge. It is obvious that, in a knowledge-based view of the organization, establishing a rewarding system based on individual productivity or contribution can be extremely difficult. These arguments may justify an increasing interest on the analysis and understanding of intrinsic motivation as a driver to individual behavior. Therefore, if intrinsic motivation can be seen as more valuable driver to action, then we can argue that the relationship between environment and motivation might be conceived as reciprocal rather than one-way.

Proposition 1: Reciprocal interaction between intrinsic motivation and organizational environment

Given the importance of intrinsic motivation, we argue that it is questionable whether the Coleman's model is valid in those cases where the primary motive to share does not come directly from the organization. The Coleman's relationship between organization and individual is one-way (influence of the organizational environment over individual behavior), but the other way is not explicitly considered (influence of individual behavior over organizational environment). A more in-deep analysis of the sources of intrinsic motivation might be useful to shed some light over this complex interrelation.

To this aim, Bandura (1985) offers a deep analysis of the concept of intrinsic motivation. The author argues that this type of motivation comprises three types of relationships between behavior and its effects. In the first form, the consequences originated externally, but they are naturally related to behavior. For example, touching a hot plate produces burn. In the second form, behavior produces naturally occurring outcomes that are internal to the organism. An example of this form might be the fatigue produced when playing sport. The third form of intrinsic motivation refers to

those cases where people's self reactions to its own performance can constitute the source of the incentive. This can be the case of an artist who makes sculptures or the pianist's self satisfaction when performing a piece. Scholars have begun to examine this positive relationship between intrinsic motivation and knowledge sharing behavior. Gagné (2009) argues that autonomous motivation will be positively related to having positive attitudes toward knowledge sharing. Further empirical evidence would help to provide strong support for this proposed relationship, and organizations might consider developing managerial mechanisms to increase intrinsic motivation when sharing knowledge.

The social cognitive perspective conceives human behavior as a triadic, dynamic, and reciprocal interaction of personal factors, behavior, and environment (Bandura, 1985). The theory puts strong emphasis on individual cognition, defining the mind as an active force that constructs one's reality, selectively encodes information, performs behavior on the basis of values and expectations, and imposes structure on its own actions. A person's owns reality is thus defined as the interaction of the environment and one's cognitions, which can change over time though a learning process. Therefore, intrinsic motivation affects and is affected by the organizational environment. The challenge for organization management will be to effectively analyze how the organizational environment can influence intrinsic motivation, and how this individual behavior can shape the organizational environment in a reciprocal interrelation. To do so, the Bandura's social cognitive theory proposes two constructs that will be below analyzed.

Self-efficacy

In the social cognitive theory, Bandura argues that intrinsic motivation can be cultivated through self-evaluative and self-efficacy mechanism (Bandura, 1982, 1997). Although literature offers several definitions of the construct, a general definition may conceive

self-efficacy as a person's estimate of his or her capacity to orchestrate performance on a specific task. Self-efficacy is closely linked to the outcome expectation of a certain behavior, which is a judgment of the likely consequence that such behavior will produce. For example, the belief that one can share valuable knowledge among her peers is an efficacy judgment; the anticipated social recognition, extrinsic rewards or self-satisfaction for successfully perform the action constitute the outcome expectation. The influence of self-efficacy over several outcomes has been empirically tested, yielding relatively consistent findings. In this sense, self-efficacy has been related to different issues such as faculty research productivity (Taylor, Locke, Lee, & Gist, 1984) or performance of difficult career-related tasks (Stumpf, Brief, & Hartman, 1987). Some scholars have introduced the construct in their analysis the antecedents of knowledge sharing behavior. In their multi-level analysis, Meng-Hsiang Hsu, Ju, Yen, & Chang (2007) conceive self-efficacy as an antecedent variable of personal outcome expectations and community-related outcome expectations for analyzing knowledge sharing behavior in virtual communities, finding empirical evidence for the proposed relationship. Lin (2007) directly proposed that self-efficacy can be an antecedent of intrinsic motivation to share knowledge.

Thus, it seems reasonable that individual self-efficacy has a positive effect over knowledge sharing behavior, although its influence is not well understood yet. Therefore, management should devote efforts in fostering individual self-efficacy. In this sense, we propose that both researchers and practitioners might explore the relationship between organizational empowerment techniques and self-efficacy, as a way to improve intrinsic motivation to share knowledge. The construct of empowerment refers to the delegation and decentralization of decision-making power,

and includes several techniques such as management by objectives, quality circles and goal-setting by subordinates (Conger & Kanungo, 1988; Thomas & Velthouse, 1990).

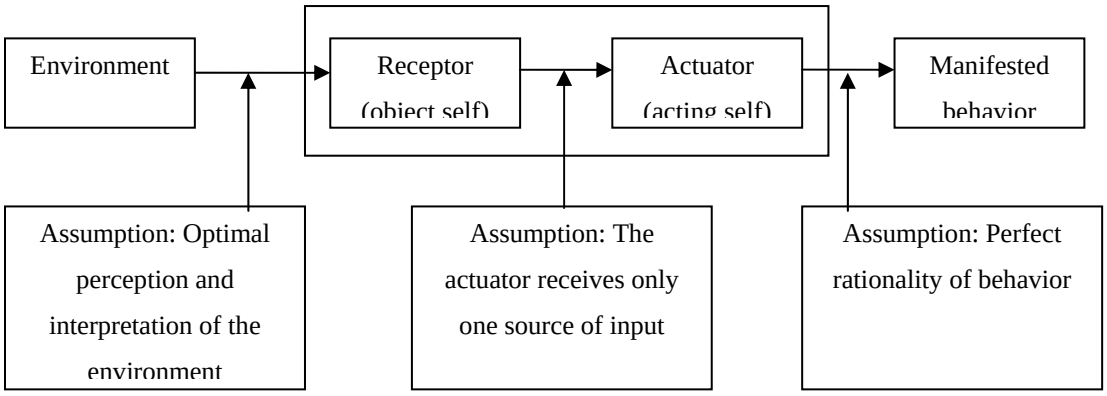
Collective efficacy

Closely related to the concept of self-efficacy, Bandura proposed the idea of perceived collective efficacy (Bandura, 2000) or group efficacy (Gibson, 1999). Group efficacy is a group's belief in its ability to perform effectively, and is often related to how much effort the group expends, thus determining group effectiveness (Campion, Medsker, & Higgs, 1993). The basic difference between self-efficacy and group efficacy is that the latter arises through group interaction and the process of collective cognition, although it affects individual behavior. For instance, an individual could manifest high levels of self-efficacy (believing that she is capable to perform a certain task), but at the same time manifest low levels of group efficacy (not believing in the effectiveness of the group). Bearing this in mind, it seems reasonable to think that a more intense analysis of the influence of group efficacy over knowledge sharing will provide insights for a better understanding of the aggregation process of individual knowledge sharing efforts. This research might help to understand the nature of the micro-macro aggregation phenomenon mentioned above.

A second limitation of the Coleman model comes from the fact that it does not offer a clear solution for the problems inherent in a unitary actor. As Coleman indicates in his seminal work, his model conceives the individual actor as a dyadic structure formed by two parts: 1) a *receptor* of signals from the environment and 2) an *actuator* which takes action toward the environment, using information from the receptor part. This conceptual separation of the two functions of the "self" implies that the *receptor* part will be willing to successfully capture and process environmental signals and that the *actuator* part will behave in a rational way, driven by self-interest. Figure 2 graphically

presents the model of the unitary actor adopted by Coleman as well as the general assumptions about the individual over which the model is built:

Figure 2: Model of the unitary actor of Coleman



Source: Own elaboration based in Coleman (1994)

Assumption 2: Optimal perception and interpretation of the environment

With regard to the *receptor* part, Coleman conceives the relationship between the individual actor and the environment from a positivist perspective. The model assumes the environment as an objective entity, therefore treating knowledge as objective information out of the individual. Hence, the comprehension of the environment is viewed as unproblematic and similar in each individual, not taking into consideration the role of the observer in the constitution of social reality. However, empirical evidence suggests that, under a complex environment, individuals make theories and generalizations in order to manage external signals. A valuable way to introduce the "complexity factor" to the model might be to look at the problem through a social cognitive perspective. Social cognitive theorists argue that, under a complex environment, individuals always make theories and generalizations in order to manage external signals.

Proposition 2: Influence of vicarious learning into perception

The inclusion of the effect of perception can be approached from the *schema theory* (Harris, 1994). Social psychologists define schemas as the dynamic, cognitive knowledge structures regarding specific concepts, entities, and events used by individuals to encode and represent incoming information efficiently (Markus, 1977). Although schemas emerge to facilitate making sense of the environment, they may have a negative effect by blinding individuals to features of the world that threaten the validity of those schemas or operate outside their purview (Harris, 1994). Therefore, if considered the individual as a *receptor* of environmental signals, it should be noted that perceptions and interpretations of events and information are shaped by the schemas applied to them. In this sense, Higgins & Bargh (1987) explicitly indicated that "*when a stimulus configuration is encountered in the environment, it is matched against a schema, and the ordering and relations among the elements of the schema are imposed on the elements of the stimulus configuration*".

According to Harris (1994), organizational schemas can be classified in five categories that capture the range of knowledge needed for these sensemaking efforts: self, person, organization, object / concept, and event. *Self schemas* refer to individual's theories and generalizations regarding aspects of themselves in the organizational context such as personality, values, roles and behavior. For instance, an employee who considers herself as being friendly would refer to this schema knowledge when deciding to share or not her knowledge among her peers. *Person schemas* can be defined as organized memories, impressions and learned expectations regarding the traits, goals, behaviors and preferences of particular individuals, groupings of people and organizational roles (Harris, 1994). The importance of person schemas in the organization lays in its influence over the summarization of beliefs that individuals have about other

employees. *Organization schemas* refer to the knowledge and impression that an individual has regarding the organizations and social groups within which the individual is embedded. The idea of *event schemas* comprises the specific knowledge about a situation that occurs in a specific context. Therefore, the fact of sharing knowledge in the organization can be conceived as an event schema. The most frequently analyzed form of event schemas are *scripts* (Gioia & Manz, 1985; Lord & Kernan, 1987). A general definition of scripts indicates defines the concept as cognitive knowledge structures held in memory that describe the appropriate sequencing of events in conventional or familiar situations (Lord & Kernan, 1987). The most relevant difference between schemas and scripts is that the former are cognitive frameworks for understanding that suggest implications for behavior, but are not generally considered as guides to behavior. Therefore, schemas can be considered relatively static in nature. In contrast, scripts can be viewed as more dynamic in that it retains knowledge of expected sequences of behaviors, actions, and events.

The importance of scripts for the transmission of tacit knowledge has recently been suggested by McQueen & Chen (2010). In this exploratory case study, they indicate that, since tacit knowledge cannot be simply transferred, it should be codified in action scripts, defining those as a set of linked diagnostic and action procedural steps that are undertaken by a person to deal with a situation that confronts them. As an example, one's script for an informal meeting with peers during coffee time might comprise several events: one should joke about trivial issues, ask for assistance about some task, share the common problems that they have faced when performing the job, etc. Hence, the quality and quantity of shared knowledge in a specific situation will depend, among others, in the script that each participating has about this event.

The major idea after reviewing the role of schemas and scripts in the organization can be stated: organizational antecedents do not automatically affects individual behavior because individual perception is determined, among others, by mental schemas and scripts. A more in-deep comprehension of these mental schemas may provide insights for a better understanding of the reasons why each individual has a different reaction to a certain organizational stimulus. Moreover, the organization may aim its efforts in understanding and modifying -if needed- the scripts that their employees follow under certain circumstances. To this aim, the influence of vicarious learning can be suggested as a way to modify scripts.

Vicarious learning refers to an important part of the acquisition and alteration of human behavior, and occurs through symbolic processes as opposed to direct experience: an observer learns from the behavior and consequences experienced by a model rather than from outcomes stemming from her performance attempts (Gioia & Manz, 1985).

As noted above, the existence of scripts influence individual behavior under certain circumstances, so the organization may be interested in understanding the influence that these scripts have over the individual disposition to share knowledge. An article of Gioia & Manz (1985) suggests that the scripts can be modified by a vicarious learning process. Concretely, they argue that *"scripts and script processing constitute the core of the vicarious learning process. […]. When an observer learns vicariously, that person is learning a script for behaving from the model"*. When applied to the study of knowledge sharing behavior, this suggested relationship between vicarious learning and scripts can have a relevant implication. The first one comes from the idea that the incentive to share knowledge can come from the modification of a script through vicarious learning. As Gioia & Manz (1985) indicate in their research, the relationship between vicarious learning and scripts follow a specific sequence of steps. First, a

model displays a salient script for the performance of a task (e.g.: in an informal meeting, one of the employees –the model- decides to ask their peers about common task problems, and then suggest possible solutions for each problem). Secondly, the observing person can form a mental representation of this modeled behavior during the process of vicarious learning and internalize the new script of behavior (e.g.: the observing person thinks that sharing common information during informal meetings can be a useful practice, so she decides to do the same the next time).

Therefore, it is expected that, under similar circumstances, the observing person perform the same script, therefore internalizing this new behavior. This idea of the use of vicarious learning for the modification of scripts can suggests prescriptions for management practice, in the sense that scripts may be used as tools for influencing behavioral change. Hence, the training of employees can be seen as a script transference and development process (Anderson, 1983). The provision of appropriate models (scripts) can be an effective tool for effecting desired change. In a practical way, management may consider the positive effect that a model with a "knowledge-sharing script" will have in the organization: via the vicarious effect over other employees.

Assumption 3: Self-interest

As mentioned above, the Coleman's view of the individual is also formed by an "actuator" part, responsible of take action in the environment after having gathered the environmental signals from the "receptor" side. Rationality and self-interest are considered as the principles of action that define the actuation of the individual in this perspective, disregarding the influence of non-selfish motives. These principles, directly derived from economic reasoning, assume that all people are exclusively motivated by their material self-interest. Therefore, the Coleman's view of the individual considers

that the "actuator" part only receives input from the "receptor" part. This implies that the motives to act are exclusively derived from the self.

Proposition 3: Influence of non-selfish motives

Psychosocial research has demonstrated that individuals do not always behave for their own sake; rather they can involve other individuals in their search for satisfaction (Fehr & Fischbacher, 2002). These authors argue that an individual actor embedded in a social system responds to actions that are perceived to be kind in a kind manner, and to actions that are perceived to be hostile in a hostile manner. In the context of knowledge sharing, *reciprocity* refers to the perceived fairness of the individuals involved in a knowledge sharing process. The positive effects of reciprocity has been shown, among others, in the research of Chiu, M Hsu, & E. Wang (2006), who found a positive relationship between the norms of reciprocity and both the quantity and quality of knowledge shared by an individual in a virtual community. This positive relationship between reciprocity and motivation to share knowledge was already suggested by E. F. Cabrera & A. Cabrera (2005) . In their theoretical research article, they concretely proposed that "expectations of reciprocity will encourage positive attitudes toward knowledge sharing and will, therefore, be positively related to knowledge sharing intentions and behaviors."

A very similar social preference is *inequity aversion*. According to Fehr & Schmidt (1999), inequity aversion means that people resist inequitable outcomes. People with high levels of inequity aversion want to increase other's person's material payoffs, if the other persons' material payoffs are below an equitable benchmark; but they feel envy when the payoffs of the others exceed the equitable level. A very different social preference is *altruism*. It is defined as a form of unconditional kindness and, by definition, does not emerge as a response of altruism received. Moreover, a fraction of

individuals can also be moved to action through *envious* preferences, thus always valuing negatively the material payoff of relevant reference individuals. Although not every individual exhibit non-selfish motives and behave purely in a selfish manner, the interaction between selfish and non-selfish motives may provide valuable insight for a better comprehension of the knowledge sharing phenomenon.

The analysis of the importance of non-selfish motives for the decision to share knowledge can benefit from some concepts derived from organizational behavior's literature. Organizational behavior's researchers have contributed to the increasing interest on non-selfish motives in the organization with the development of the concept of *organizational citizenship behavior* (OCB). This includes behavior that is "discretionary, not directly or explicitly recognized by the formal reward system and that in the aggregate promote the effective functioning of the organization" (Yu & Chu, 2007). To our knowledge, only one research paper has analyzed the influence of OCB over individual disposition to share knowledge. In this paper, Yu & Chu (2007) suggested to use the lens of OCB to better explain the factors that facilitate voluntary knowledge sharing in a online gaming community. The conclusions of the study reflected the great significance of interpersonal factors at work over effective knowledge sharing, such as positive affection, social relations and expected reciprocity. Therefore, it is reasonable to suggest further research about the relationship between OCB and disposition to share knowledge in other contexts, such as in the transmission of tacit knowledge in the organization framework.

Assumption 4: Rationality of behavior

The model of Coleman is also grounded on the assumption of rational choice. In a theory of purposive action, such as the Coleman is, unitary behavior is always accounted for as being rational. According to this view, when an individual decides to

perform a certain action, all possible alternatives are evaluated, and the final decision reflects the best alternative based on a cost/benefit analysis. However, this view does not seem realistic, especially if an individual-decision approach is considered.

Proposition 4: Influence of irrationality

Being aware of this limited view of reality; cognitive psychologists have shown that irrationality often plays a major role in explaining some types of behavior. The role of irrationality is closely derived from the existence of mental schemas mentioned above. Coleman (1994) manifest that *"one class of problems concerning the actor […] is the class of problems having to do with apparent irrationalities or inconsistencies of individuals". […] Some of these deviations from rationality appear to result because the organization of the self is more complex than is assumed for the unitary actor in rational-choice theory"* (1994:505). Although being aware of the existence of these inconsistencies between irrational behavior and his proposed social theory, the author decides to disregard deviations from rationality arguing that they do not substantially affect the social theory developed. An extensive body of work based on cognitive psychology analyses the cases in which individual behavior does not fit with the "normative" view of behavior -the maximization of expected individual utility- and has developed an extensive body of knowledge about the topic. The importance of irrationality in the organization has been widely studied, as in the research of Brunsson (1982), which conceives irrationality as a basic feature of organizational behavior. It is worth to note that irrational behaviors does not only manifest in trivial decision, rather they can also affect important decisions, such as the strategic decision processes (T.K. Das, 1999).

In our view, traditional research about knowledge sharing has engendered an increasing consensus about the rationality of individuals. However, empirical research has found

sufficient evidence about the irrationality of human behavior under certain circumstances. Since the purpose of this paper is to suggest further paths for a better understanding of the sharing of knowledge in the organization, the influence of irrationality in knowledge sharing behavior is proposed as a relevant stream of analysis. This research can be based upon the existing classification of *cognitive biases,* which are defined as systematic deviations from normative models that prescribe rational behavior, as articulated by game theory and other normative principles (Bazerman & Neale, 1993). Cognitive psychology has proved the existence of a wide number of cognitive biases, which can affect to both the sender and the receiver of knowledge in the organization. For instance, *anchoring* can occur when an individual's judgment is weighted by an initial datum and the individual fails to adjust his or her assessment of value sufficiently, given that initial anchor (Connolly, 2000). Therefore, it is expected that individuals will not directly respond to a certain organizational stimulus due to an anchoring effect, among other factors. This effect has been widely studied in negotiation analysis (Galinsky, Seiden, Kim, & Medvec, 2002; Weingart, Bennett, & Brett, 1993), showing that initial offers always influence the adoption of a reference point. In some other cases, biases can make reference to the views that individual's holds about others. As an example, cognitive researchers have shown that individuals usually hold a *fixed-pie perception* about others, consisting on the erroneous belief that the other party's interests are directly opposed to one's own interests when, in fact, they are often not completely opposed (Bazerman & Neale, 1993). To our knowledge, no explicit analysis has been performed in order to explore the effect of cognitive biases in both the sender and the receiver of knowledge in the organization.

5 Conclusions and further research

Our starting point has been the evident complexity of the knowledge sharing process. Due to its difficulty, the analysis of knowledge sharing in organizations requires a multifaceted approach. This approach should be build upon different disciplines, such as strategic management, organizational behavior or social psychology; and different levels of analysis – organization and individual - . Therefore, the issue of defining a suitable framework of analysis to integrate these different perspectives looks difficult but promising. The analysis of the individual as a part of a social system, theorized by Coleman and applied to knowledge sharing research by a group of scholars provide an interesting way to analyze the problem from a more complete and integrated perspective. However, due to the sociological nature of the theory, the background assumptions over which most of the existing research is based might be questioned. In doing so, this paper suggests to explore the knowledge sharing phenomenon considering that: 1) The relationship between motivation and environment might be conceived as triadic, dynamic and reciprocal 2) Individual perception of the environment directly affects behavior 3) Non-selfish motives have significant influence in explaining human behavior 4) Irrationality can manifest in human behavior.

Taking this into consideration, our analysis suggest that further research may be devoted to introduce some socio-cognitive concepts to better deal with the complexities of the interrelation between the individual and the environment. To this aim, we suggest that further research is needed to explore the influence of self-efficacy and collective efficacy over intrinsic motivation to share knowledge. Moreover, a dynamic analysis of the influence of intrinsic motivation over self efficacy and collective efficacy would provide interesting insights. The relationship of these concepts with human resources concepts, such as empowerment, might also bring interesting results.

Moreover, we suggest that the inclusion of individual perception in the knowledge sharing process through the analysis of schemas and scripts offers and interesting challenge for further research. Specifically, researchers could explore the influence of vicarious learning processes in mental scripts. If this influence is suggested to be positive, further research could propose strategies for management in order to foster vicarious learning in the organization.

This article also explores the relationship between non-selfish motives and knowledge sharing behavior. A wide number of researchers have demonstrated that individuals do not always behave with a focus on their own outcome; rather they can give a certain weight to what others receive. Further analysis about the influence of non-selfish motives such as altruism or reciprocity over knowledge sharing might shed some light over the complexity of individual behavior to share knowledge.

Finally, psychological research has demonstrated that individuals do not always behave in a rational way. Rational-choice theory cannot always be conceived as a guideline for behavior. Therefore, the influence of irrationality towards the decision to share knowledge might devote more attention. In doing so, future lines of research might explore the correlation between different cognitive biases and knowledge sharing behavior.

In our opinion, a better integration of these socio cognitive concepts in the research of knowledge sharing will provide a more complete understanding of the phenomenon, allowing practitioners to establish more effective strategies to increase knowledge sharing among employees.

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